

Amendments to the Specification:

Please replace paragraphs [0077], [0098], [0100], [0102], [0110], [0114] and [0117] with the following amended paragraphs:

[0077] Referring to ~~FIG. 2~~ FIG. 1, there is shown in a schematic view a Mach-Zehnder device 10 in accordance with an embodiment of the present invention. The Mach-Zehnder device 10 defines an input port 12 and an opposed output port 14. The device 10 also defines a first coupling region 16 optically connected to the input port 12 and a second coupling region 18 optically connected to the output port 14.

[0098] As shown more specifically in FIGS. 2 through 4, the first and second main fibers each define a conventional single-mode fiber core 96 and a conventional single-mode fiber cladding 98. Similarly, the phase shifting segment 44, the polarization orienting segments of polarization maintaining fiber 48, 50 and the polarization maintaining segment of polarization maintaining fiber 51 all define a conventional polarization maintaining fiber core 100, a conventional polarization maintaining fiber cladding 102 and conventional polarization maintaining stress rods 104. It should be noted that the polarization maintaining stress rods 104 could be otherwise positioned such as orthogonally shifted relative to the positioning shown in ~~FIG. 4~~ FIG. 5, without departing from the scope of the present invention.

[0100] As with some other types of polarization splitting and combining device, the device 10 may be used selectively either as a splitter or a combiner by selecting the direction of propagation of the optical signal ~~within~~ within the device. As shown in ~~FIG. 7~~ FIG. 6, when the device 10 is used as a splitter, a randomly polarized light signal 52 is directed into the input port 12. The randomly polarized light signal 52 includes orthogonal fast and slow polarization components schematically represented respectively by the symbols 54 and 56.

[0102] When the split signal 58 reaches the phase shifting portion 26, the change in the level of birefringence referred to as the birefringence differential creates a polarization selective phase shift between either the first split signal fast or slow polarization components 62 or 66 and respectively either the corresponding second split signal fast or slow polarization components 64 or 68. Depending on the orientation of the phase shifting segment fast polarization axis either the first split signal fast or slow polarization component 62, 66 will be phased shifted. By way of example only, in ~~FIG. 3~~ FIG. 6, the first split signal fast polarization component 62 is phase shifted by a phase shifting length 69 and becomes phase shifted first split signal slow polarization component 62'.

[0110] The present invention also relates to a method for forming a Mach Zehnder device such as the Mach Zehnder device 10 hereinabove disclosed. Some of the steps involved in the method in accordance with the present invention for forming the Mach Zehnder device 10 are schematically illustrated in ~~FIGS. 7 through 9~~ FIGS. 8 through 10.

[0114] Another step involved in the manufacturing of the Mach Zehnder device 10 being also illustrated in ~~FIG. 8~~ FIG. 9 is the alignment of the first and second main fibers so that the first and second fiber first coupling segments 30, 38 and the first and second fiber second coupling segments 32, 40 are substantially aligned respectively with each other.

[0117] In ~~FIG. 9~~ FIG. 10, the second fiber first and second coupling segments 38, 40 have undergone a preliminary elongation. To form the first and second coupling regions 16, 18, the pre-stretched segments are aligned side by side correspondingly with the first fiber first and second coupling segments 30, 32 before being mutually thermally fused to form fused first and second coupling sections 16, 18.